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Letter to Editor

Title: Alcohol: a probable risk factor of COVID-19 severity

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COVID-19, a current pandemic, has contributed to many fatalities worldwide. Sepsis, respiratory failure, and acute respiratory distress syndrome (ARDS) have occurred in most fatal cases [1].

Several clinical factors have been demonstrated as risk factors of COVID-19 severity and death [1, 2]. Among modifiable health risk factors, smoking has been given special attention along with clinical factors. A systematic review conducted recently has already identified five studies exploring the effects of smoking on severity of COVID-19 [3]. WHO has particularly emphasized the vulnerability of smokers to COVID-19 [4] (6). Obesity, another modifiable risk factor, has also been investigated with emerging evidence of an association [5-7]. Obesity is closely related to two behavioral risk factors—poor diet and lack of physical activity [6]. Alcohol consumption has not been granted much attention although several studies have reported that alcohol consumption increased the risk of ARDS in patients with critical conditions and the admission to intensive care unit (ICU) in patients with pneumonia [8-10]. At the time of writing, to our knowledge, no published study exploring the risk factors of disease severity in COVID-19 patients has included alcohol consumption as a covariate.

An independent effect of 'chronic alcohol abuse' on ARDS in critically ill patients has been demonstrated in a prospective cohort study [8]. A recent systematic review and meta-analysis found that any measure of high relative to low alcohol consumption was associated with a significantly increased risk of ARDS (odds ratio [OR] 1.89; 95% CI, 1.45-2.48 [10]. Alcohol can increase the risk of developing ARDS through various mechanisms including alveolar epithelium dysfunction, alcohol-induced oxidative stress, and interference of alveolar macrophage function [11]. In hospitalized patients with pneumonia, having an alcohol-related diagnosis was associated with greater likelihood of admission to ICU (OR 1.63) and longer length of stay (adding extra 0.6 days) [9]. Chronic alcohol consumption can induce cilia dysfunction in airways that reduces their ability to clear bacteria and virus [11].

These effects of alcohol consumption have important implications for the management of patients with COVID-19. History of alcohol use could be an important predictor for disease severity and ICU admission, and could contribute to treatment strategy for COVID-19 patients with chronic alcohol consumption and alcohol use disorders (AUDs). Therefore, the role of alcohol consumption on severity of illness in patients with COVID-19 should be explored and a history of alcohol consumption should be included as a probable risk factor of disease severity in COVID-19 studies.

It will be valuable to see more attention paid to this issue by health authorities, researchers, and practitioners with warnings being given on the probable effects of alcohol consumption in relation to COVID-19.

References

1. ZHOU F., YU T., DU R., FAN G., LIU Y., LIU Z. et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study, Lancet 2020: 395: 1054-1062.
2. LIU W., TAO Z. W., LEI W., MING-LI Y., KUI L., LING Z. et al. Analysis of factors associated with disease outcomes in hospitalized patients with 2019 novel coronavirus disease, Chin Med J (Engl) 2020.
3. VARDAVAS C. I., NIKITARA K. COVID-19 and smoking: A systematic review of the evidence, Tobacco Induced Diseases 2020: 18.
4. WORLD HEALTH ORGANIZATION. Q&A on smoking and COVID-19; 2020.
5. LIGHTER J., PHILLIPS M., HOCHMAN S., STERLING S., JOHNSON D., FRANCOIS F. et al. Obesity in patients younger than 60 years is a risk factor for Covid-19 hospital admission, Clin Infect Dis 2020.
6. SATTAR N., MCINNES I. B., MCMURRAY J. J. V. Obesity a Risk Factor for Severe COVID-19 Infection: Multiple Potential Mechanisms, Circulation 2020.
7. SIMONNET A., CHETBOUN M., POISSY J., RAVERDY V., NOULETTE J., DUHAMEL A. et al. High prevalence of obesity in severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) requiring invasive mechanical ventilation, Obesity (Silver Spring) 2020.
8. MOSS M., BUCHER B., MOORE F. A., MOORE E. E., PARSONS P. E. The role of chronic alcohol abuse in the development of acute respiratory distress syndrome in adults, JAMA 1996: 275: 50-54.
9. SAITZ R., GHALI W. A., MOSKOWITZ M. A. The impact of alcohol-related diagnoses on pneumonia outcomes, Arch Intern Med 1997: 157: 1446-1452.
10. SIMOU E., LEONARDI-BEE J., BRITTON J. The Effect of Alcohol Consumption on the Risk of ARDS: A Systematic Review and Meta-Analysis, Chest 2018: 154: 58-68.
11. SIMET S. M., SISSON J. H. Alcohol's Effects on Lung Health and Immunity, Alcohol Res 2015: 37: 199-208.